

§ 417.25 Post launch report.

(a) For a launch operator launching from a Federal launch range, a launch operator must file a post launch report with the FAA no later than 90 days after the launch, unless an FAA launch site safety assessment shows that the Federal launch range creates a post launch report that contains the information required by this section.

(b) For a launch operator launching from a non-Federal launch site, a launch operator must file a post launch report with the FAA no later than 90 days after the launch.

(c) The post launch report must:

(1) Identify any discrepancy or anomaly that occurred during the launch countdown and flight;

(2) Identify any deviation from any term of the license or any event otherwise material to public safety, and each corrective action to be implemented before any future flight;

(3) For the launch of launch vehicle flown with a flight safety system, identify any flight environment not consistent with the maximum predicted environment as required by D 417.7(b) and any measured wind profiles not consistent with the predictions used for the launch, as required by § 417.7(g)(3); and

(4) For the launch of an unguided suborbital launch vehicle, identify the actual impact location of all impacting stages and any impacting components, and provide a comparison of actual and predicted nominal performance.

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§§ 417.26–417.100 [Reserved]

Subpart B—Launch Safety Responsibilities

§ 417.101 Scope.

This subpart contains public safety requirements that apply to the launch of an orbital or suborbital expendable launch vehicle from a Federal launch range or other launch site. If the FAA has assessed the Federal launch range, through its launch site safety assessment, and found that an applicable range safety-related launch service or

property satisfies the requirements of this subpart, then the FAA will treat the Federal launch range's launch service or property as that of a launch operator without need for further demonstration of compliance to the FAA if:

(a) A launch operator has contracted with a Federal launch range for the provision of the safety-related launch service or property; and

(b) The FAA has assessed the Federal launch range, through its launch site safety assessment, and found that the Federal launch range's safety-related launch service or property satisfy the requirements of this subpart. In this case, the FAA will treat the Federal launch range's process as that of a launch operator.

§ 417.103 Safety organization.

(a) A launch operator must maintain and document a safety organization. A launch operator must identify lines of communication and approval authority for all public safety decisions, including those regarding design, operations, and analysis. A launch operator must describe its lines of communication, both within the launch operator's organization and between the launch operator and any federal launch range or other launch site operator providing launch services, in writing. Documented approval authority shall also be employed by the launch operator throughout the life of the launch system to ensure public safety and compliance with this part.

(b) A launch operator's safety organization must include, but need not be limited to, the following launch management positions:

(1) An employee of the launch operator who has the launch operator's final approval authority for launch. This employee, referred to as the launch director in this part, must ensure compliance with this part.

(2) An employee of the launch operator who is authorized to examine all aspects of the launch operator's launch safety operations and to monitor independently personnel compliance with the launch operator's safety policies and procedures. This employee, referred to as the safety official in this part, shall have direct access to the launch director, who shall ensure that

all of the safety official's concerns are addressed prior to launch.

§417.105 Launch personnel qualifications and certification.

(a) *General.* A launch operator must employ a personnel certification program that documents the qualifications, including education, experience, and training, for each member of the launch crew.

(b) *Personnel certification program.* A launch operator's personnel certification program must:

(1) Conduct an annual personnel qualifications review and issue individual certifications to perform safety related tasks.

(2) Revoke individual certifications for negligence or failure to satisfy certification requirements.

§417.107 Flight safety.

(a) *Flight safety system.* For each launch vehicle, vehicle component, and payload, a launch operator must use a flight safety system that satisfies subpart D of this part as follows, unless §417.125 applies.

(1) *In the vicinity of the launch site.* For each launch vehicle, vehicle component, and payload, a launch operator must use a flight safety system in the vicinity of the launch site if the following exist:

(i) Any hazard from a launch vehicle, vehicle component, or payload can reach any protected area at any time during flight; or

(ii) A failure of the launch vehicle would have a high consequence to the public.

(2) *In the downrange area.* For each launch vehicle, vehicle component, and payload, a launch operator must provide a flight safety system downrange if the absence of a flight safety system would significantly increase the accumulated risk from debris impacts.

(b) *Public risk criteria.* A launch operator may initiate the flight of a launch vehicle only if flight safety analysis performed under paragraph (f) of this section demonstrates that any risk to the public satisfies the following public risk criteria:

(1) A launch operator may initiate the flight of a launch vehicle only if the risk associated with the total

flight to all members of the public, excluding persons in waterborne vessels and aircraft, does not exceed an expected average number of 0.00003 casualties ($E_c \leq 30 \times 10^{-6}$) from impacting inert and impacting explosive debris, ($E_c \leq 30 \times 10^{-6}$) for toxic release, and ($E_c \leq 30 \times 10^{-6}$) for far field blast overpressure. The FAA will determine whether to approve public risk due to any other hazard associated with the proposed flight of a launch vehicle on a case-by-case basis. The E_c criterion for each hazard applies to each launch from lift-off through orbital insertion, including each planned impact, for an orbital launch, and through final impact for a suborbital launch.

(2) A launch operator may initiate flight only if the risk to any individual member of the public does not exceed a casualty expectation (E_c of 0.000001 per launch ($E_c \leq 1 \times 10^{-6}$) for each hazard.

(3) A launch operator must implement water borne vessel hazard areas that provide an equivalent level of safety to that provided by water borne vessel hazard areas implemented for launch from a Federal launch range.

(4) A launch operator must establish aircraft hazard areas that provide an equivalent level of safety to that provided by aircraft hazard areas implemented for launch from a Federal launch range.

(c) *Debris thresholds.* A launch operator's flight safety analysis, performed as required by paragraph (f) of this section, must account for any inert debris impact with a mean expected kinetic energy at impact greater than or equal to 11 ft-lbs and, except for the far field blast overpressure effects analysis of §417.229, a peak incident overpressure greater than or equal to 1.0 psi due to any explosive debris impact.

(1) When using the 11 ft-lbs threshold to determine potential casualties due to blunt trauma from inert debris impacts, the analysis must:

(i) Incorporate a probabilistic model that accounts for the probability of casualty due to any debris expected to impact with kinetic energy of 11 ft-lbs or greater and satisfy paragraph (d) of this section; or

(ii) Count each expected impact with kinetic energy of 11 ft-lbs or greater to a person as a casualty.